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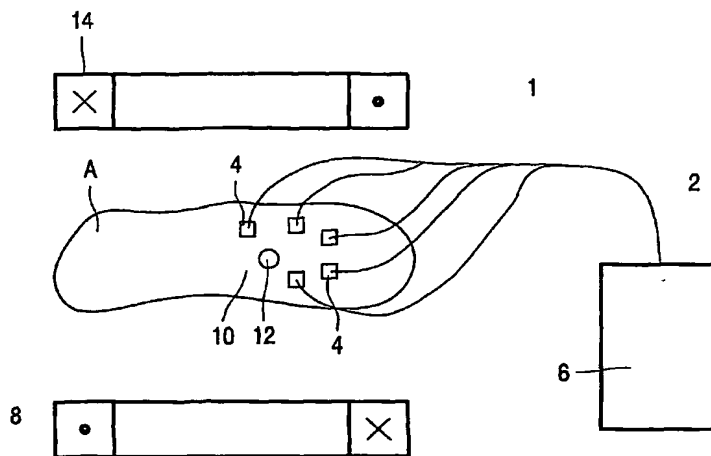
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(54) Title: **DEVICE AND METHOD FOR EXAMINATION AND USE OF AN ELECTRICAL FIELD IN AN OBJECT UNDER EXAMINATION CONTAINING MAGNETIC PARTICLES**



(57) Abstract: The present invention relates to a device for examination and use of an electrical field in a magnetic gradient field, containing magnetic particles in an examination area of an object under examination, comprising a) at least one first arrangement for determining the spatial distribution of magnetic particles in at least one examination area of the object under examination, comprising a means for generating a magnetic field with such a spatial magnetic field strength profile that a first sub-zone with low magnetic field strength and a second sub-zone with higher magnetic field strength are produced in at least one examination area, a means for detecting signals which depend on the magnetization in the object under examination, especially in the examination area, influenced by a local change in the particles, together with a means for evaluating the signals to

obtain information about the, especially time-variable, spatial distribution of the magnetic particles in the examination area; and b) at least one second arrangement, comprising at least one electrical transmit and/or receive unit, comprising at least one voltage generator, at least one terminal contact connected to the voltage generator and applicable and/or fastenable to an object under examination, and a ground terminal applicable and/or fastenable to an object under examination. The invention also relates to a method of determining the, especially three-dimensional, conductivity distribution in an examination area of an object under examination using a device according to the invention, a method for drug or active ingredient release, especially in locally targeted manner, in an examination area of an object under examination likewise using a device according to the invention, as well as use of a device according to the invention for electro-stimulation. The invention further relates to an electro-physiologic contrast composition, to a method for the manufacture of said contrast composition and to a method for imaging electric resistivity or conductivity in an examination area in particular to a method for imaging internal electric fields using the electro-physiologic contrast composition according to the invention.



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